

aluminum



Aluminum

— Industry of the Future

Industrial
Partnerships:
Advancing
Energy and
Environmental
Goals



Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy

Office of Industrial Technologies



Industry collaboration

Energy accounts for approximately one-third of the cost of primary aluminum production. The high cost of energy reduces the capital that is available for investment in technology and production. Industry partnering solves this problem by leading to expanded resources and the development of energy-efficient technologies. Better technology means reduced energy costs in the short run, and additional sources of funding for the continued development of cost-saving technology in the long run. Partnering between the U.S. Department of Energy's (DOE) Office of Industrial Technologies (OIT), the Aluminum Association, and others with a vital interest in the industry ensures that the U.S. aluminum industry will continue to compete effectively in the global market.

One of the big draws is the cost-share aspect of partnering. To share risk—no question that that is a drawing card for involvement. With partnering, there's a broader view; more willingness to go forward with riskier projects that have potentially good payoffs and a long-term view.

—Mike Skillingberg, *Vice President of Technology, Aluminum Association*

Led by the Aluminum Association, the aluminum industry joined in a voluntary partnership with OIT in 1996. The partners agreed to work together to identify critical areas and targets of opportunity where technological advances help ensure the aluminum industry's future success. Extensive participation in key states such as Kentucky, West Virginia, Indiana, Tennessee, and Ohio, as well as in the Pacific Northwest, increases the effectiveness of the aluminum industry partnership by facilitating the participation of small-

Successful alliances

The aluminum industry benefits from strong partnerships with OIT, universities, national laboratories, suppliers, equipment manufacturers, and aluminum companies. From specific projects to large-scale activities, partnering means success for each aluminum industry partner.

For example, successful alliance-building discussions between Alcoa and OIT culminated in a training workshop to familiarize 30 Alcoa workers from at least a dozen Alcoa facilities with OIT programs and initiatives. Alcoa attendees came away from the training with the ability to immediately implement energy saving best practices in production facilities. In addition, Alcoa will be hosting a Showcase Demonstration, in which cutting-edge aluminum technologies are introduced into existing facilities and showcased during a public event. Without the initial partnership between OIT and the aluminum industry, these activities could not take place.

State-initiated programs are responsible for much of the aluminum industry's success. Secat Inc. is a local Kentucky

and medium-sized companies. The industry's early and ongoing commitment to developing and updating technology goals results in reduced energy use and environmental impacts, increased productivity, and significant competitive advantages for the industry.

What's working

The success of the aluminum industry's collaborative efforts with OIT can be traced to several effective elements:

- Partnering between OIT and the aluminum industry has led to the creation of several detailed roadmaps that are extensions of the initial Aluminum Industry Technology Roadmap. These additional roadmaps are tailored to facilitate research and development in key technological areas specific to the aluminum industry, including inert anodes and automotive markets. In the words of Mike Skillingberg, Aluminum Association Vice President of Technology, "Roadmaps lead to a shared understanding of aluminum industry needs. Even when developing a specific project, roadmaps help each partner to know where the real goals are."
- State-level initiatives lead to increased participation in national DOE programs and the formation of university consortiums. State leaders are more familiar with smaller companies that don't have internal research

company that serves as a research brokerage specifically dedicated to organizing and directing high-priority research for the aluminum industry. Secat was initiated with over \$7 million in support in the form of land, a building, laboratory equipment and endowments, from the State of Kentucky, the Kentucky Economic Development Cabinet, the University of Kentucky, and the aluminum industry. Contributions from a consortium of major aluminum producers and others ensure Secat's success. With \$6.6 million in DOE funding, and with matching funds from industry partners, Secat is directing research into projects such as new methods to reduce oxidative melt loss and ingot cracking in direct chill castings. Secat facilitates collaboration between companies with as few as 100 people to organizations as large as national laboratories. Subodh Das, Secat President, says, "Before, small, profitable companies had little means to access national labs, universities, and other resources. We can form the bridge between industry needs and our country's resources." Secat's mission and success would not be possible without the ongoing support and participation of numerous aluminum industry partners and OIT.

and development programs, nor familiarity with federal funding opportunities. State initiatives bring these smaller companies together and help establish partnerships to facilitate their participation. According to Sara Dillich, OIT Aluminum Team Leader, "Many of these companies do not have the resources to join in on their own, but being part of a larger group made possible their participation in DOE cost-shared research and development projects."

Partnering benefits

Partnering in the OIT Aluminum Industry of the Future initiative gives the industry important competitive advantages. Participating aluminum companies benefit from the reduced cost and risk of collaborative research and development that stems from leveraging limited resources. Networking leads to streamlined access to Federal scientific resources, increased technology replication, and leading involvement in cutting-edge technological development.

For example, the Alumax (currently co-owned by Alcoa and Century Aluminum) Mount Holly plant in South Carolina wanted to improve the energy efficiency of its four potline dust collection systems. OIT's BestPractices team worked with Alumax measuring

fan speed, air temperature, air flow, static pressure, and fan motor power consumption under three different scenarios. Alumax discovered that shutting off one of four fans in each potline fume-collection system netted an annual energy savings of more than \$100,000. Such impressive savings would not have been possible without research, development, and funding from numerous partners.

As a result of collaborative research and development, the aluminum industry saves both money and energy. The industry's dedication to facilitating the participation of both large and small companies means greater flexibility, pooled resources, and a greater level of success for all partners in the Aluminum Industry of the Future.

How to participate

As consolidation in the U.S. aluminum industry leads to tighter competition, and as the global economy becomes increasingly more integrated, the aluminum industry must continually seek new ways to stay at the forefront of manufacturing technology. By partnering with the U.S. Department of Energy's Office of Industrial Technologies (OIT), aluminum industry leaders are better able to facilitate technology research focused on the specific needs of the industry.

There are many ways to participate in aluminum industry and OIT partnerships. If you would like to learn about how to become a partner, please contact Sara Dillich, OIT Aluminum Team Leader at (202) 586-7925 or sara.dillich@ee.doe.gov. Other ways to get involved include:

- Monitoring our Web pages for news and announcements of research and development solicitations (www.oit.doe.gov/aluminum/).
- Teaming with other organizations and responding to solicitations for cost-shared research issued by OIT's Aluminum Industry of the Future team and other OIT programs.
- Begin saving energy, reducing costs, and cutting pollution in your plant today by participating in OIT's BestPractices activities.
- Contacting your state energy office for information on local initiatives.





For more information on the Aluminum Industry of the Future, contact the OIT Clearinghouse at (800) 862-2086 or visit www.oit.doe.gov/aluminum/

Please send any comments, questions, or suggestions to webmaster.oit@ee.doe.gov

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